Alabama Transportation Institute

Strategic Plan
2020-2024

Advancing Alabama's economy, safety and quality of life through transportation.

The mission of the Alabama Transportation Institute at The University of Alabama is to facilitate and reflect world-class leadership in interdisciplinary transportation research that serves the State of Alabama and beyond.

Alabama Transportation Institute

/ INTRODUCTION /

The Alabama Transportation Institute (ATI) was founded in 2017 to bring together a nationally recognized team of researchers, in concert with industry and government, to seek innovative solutions to the challenges of building and maintaining a transportation system that protects lives, creates economic growth and saves time and energy resources. This interdisciplinary institute enables Alabama to lead the way on emerging issues like developing creative solutions for financing the construction and maintenance of roads and bridges, advancing transportation safety research, and evaluating the impact that a quality transportation system will have on Alabama's economic future. ATI serves as an independent resource that develops unbiased information for use by local, state and national leaders in developing transportation policy. The result is more and better-informed decision-making that leads to innovative, data-driven, cost-effective solutions that advance Alabama's economy, safety and quality of life through transportation.

/ PHILOSOPHY OF ATI'S RESEARCH IDENTITY /

ATI's research themes are broad, transdisciplinary ideas that can attract large grants and contracts around concepts where there are existing assets, opportunities, and a place where we can establish a unique niche. The research themes reflect both the identity for the institute and priorities for institute investment. Generally, institute research themes reflect intersections among existing UA centers. Centers work on institute research themes in clusters called "collaboratories."

While the institute research themes reflect priorities for institute investment, ATI will also support new emergent initiatives through the ATI Labs Program. ATI Labs receive investment from ATI with the expectation that some eventually mature to become centers.

Finally, ATI is also defined by its people, and its research identity is also defined by the combined portfolio of its community, to the extent to which it is possible to capture and describe that combined portfolio in large scale. Where possible, ATI will invest seed funding to enable ATI faculty to grow individual research portfolios.

In short, ATI's research identity and its investment priorities will be defined at three levels:
1. A small number of institute research themes that are the foci of the ATI collaboratories.
2. A variety of emergent research areas, as defined through the ATI Labs.
3. An extensive, combined portfolio encompassing all ATI transportation researchers and affiliated centers.

All three of these levels will be communicated in websites, reports, documents, and publicity materials. Investments in each of these levels will be made where feasible and where opportunity exists.

Research Themes

Digital Transportation

Modern transportation simultaneously generates and relies on enormous amounts of data as the operational requirements to provide accessibility and mobility become increasingly linked to development of smart, connected cities and communities. ATI is embracing the challenge and opportunity of the new data-driven transportation paradigm by cultivating and supporting expertise in the efficient and secure collection, storage, and analysis of transportation-derived data.

Connected Vehicles & Infrastructure

As communications technologies continue to pervade human life and civil society, the physical components of the transportation system will continue to be increasingly connected to each other. ATI is leading research, in the laboratory and in the field, to design and test the latest equipment and protocols that will be necessary to realize the full potential of these new transportation technologies.

Transportation Safety, Security, & Accessibility

Access to safe and secure transportation is foundational to an economically dynamic and socially inclusive society. ATI fosters an interdisciplinary research portfolio aimed at enhancing quality of life by connecting individuals, communities, and economies via a highly functional transportation system that balances the mandate to provide cost effective, efficient solutions with the needs of the full range of potential system users.

Electric Vehicles & Fuel Economy

In recognition of the finite supply, security challenges, and environmental consequences associated with fossil fuel consumption, the world is begun preparing for a global shift in how transportation will be powered in the future.

Through rigorous, academic research in partnership with a range of industry and governmental stakeholders, ATI is at the forefront of designing the next generation of electric vehicles and the infrastructure necessary to integrate them into the transportation system.
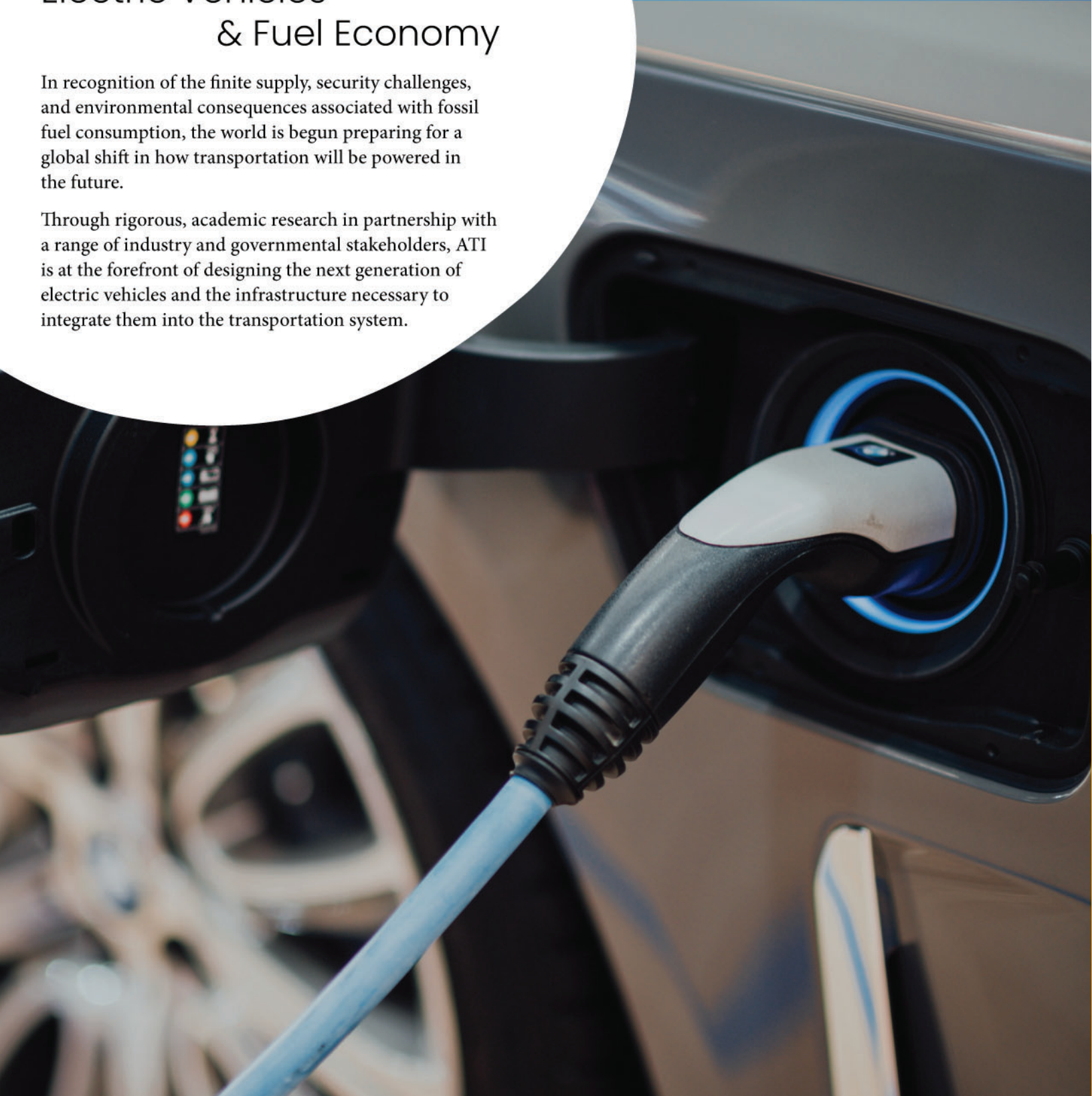
Sustainable Transportation Infrastructure

Functional transportation infrastructure is the foundation of vibrant communities and economies. ATI facilitates both basic and applied research into new materials, designs, as well as construction and maintenance techniques to enhance the sustainability and resiliency of surface transportation infrastructure.

Strategies
& Metrics

Serve the state of Alabama.

a. Provide products, expert knowledge and support to Alabama state and local government related to transportation, with emphasis on policy, planning and operations and the ATI research themes.

b. Assist Alabama state and local government with proposals to bring federal and corporate investment into the state.

c. Seek collaboration opportunities with Alabama state agencies that have transportation roles and projects.

METRICS TO VALIDATE SUCCESS

Metrics will be evaluated annually with respect to two six-month cycles (April 1-September 30, October 1-March 31). This will enable us to align with two UA annual cycles: (a) the Center/ Institute Evaluation Year (April 1-March 31) and (b) the Fiscal Year (October 1-September 30).

1. Number of requests for ATI assistance from Alabama state and local government related to transportation and number of successful executions of those requests.

2. Number of transportation-related projects and products that serve the state.

3. Number of reports and publications that provide expert knowledge regarding transportation in service to the state, and number of downloads of those reports.

4. Number of uses of products created by ATI for Alabama state and local government to support transportation.

5. Number/dollar amount of (federal) proposals submitted by Alabama state and local government for which ATI aided in proposal ideation and development.

6. Number/dollar amount of (federal) proposals funded to Alabama state and local government for which ATI aided in proposal ideation and development.

Facilitate the transportation research, development, and innovation portfolio to expand the economy and improve safety and quality of life in Alabama.

a. Obtain extramural funding (especially from federal sources) for transportation research, development, and innovation.

b. Organize clusters (known as "collaboratories") of related ATI faculty, researchers and centers that collaboratively support various institute research themes.

c. Provide support through the ATI Labs Program to projects in areas that are not encompassed by the institute research themes.

d. Provide support to build and enhance the national and international reputation of ATI transportation researchers.

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1. Number/dollar amount of research proposals submitted to federal agencies.
2. Number/dollar amount of research proposals funded by federal agencies.
3. Number/dollar amount of research proposals submitted to state agencies, corporate entities or foundations.
4. Number/dollar amount of research proposals funded by state agencies, corporate entities or foundations.
5. Number/dollar amount of research grants and contracts currently in force funded by federal agencies.
6. Number/dollar amount of research grants and contracts currently in force funded by state agencies, corporate entities or foundations.
7. Number of research technical reports by UA faculty and research personnel.
8. Number of peer-reviewed publications by UA faculty and research personnel.
9. Number of citations of publications by UA faculty and research personnel.
10. Number of presentations by UA faculty and research personnel.
11. Number of National committees (e.g., TRB, NCHRP, AASHTO, ATSIP, ASCE, ITE, etc.) led and participated in (Name, committee, role, term).

/ STRATEGY THREE /

Communicate ATI's impact and future opportunities for engagement with stakeholders.

a. Define the stakeholder community:

» Formalize an *internal* UA community of transportation researchers through ATI membership tiers for researchers.

» Formalize an *external* community of legislative, corporate, government and research stakeholders, and cultivate relationships within that community.

b. Communicate ATI's impact to external transportation stakeholders.

c. Establish an External Advisory Board and engage with the ATI affiliated members and centers to obtain stakeholder guidance and feedback.

d. Become named and endowed.

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1. Number of internal ATI affiliates.
2. Number of individual ATI external stakeholders.
3. Number of web pages, videos and publications produced to communicate about ATI.
4. Number of web page views/accesses.
5. Number of downloads of reports.
6. Total dollar value of gifts.

Organize to promote efficiency of operations and to communicate value.

a. Maintain an annual budget that supports advance planning for ATI initiatives and investment.

b. Collaborate among the various transportation centers on finances, proposal and business development, communications and research infrastructure support.

c. Organize the ATI team functionally around the strategies provided herein.

d. Identify and invest in shared infrastructure for the transportation centers.

e. Identify and share metrics to validate the success of the various strategies.

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1. Percentage of ATI research and development personnel salaries funded by external grants and contracts.

2. Number of monthly reports produced.

/ GUIDING PRINCIPLES FOR THE PLAN /

ATI developed this plan in the context of the **ORED Research Strategic Plan 2019-2024**. That plan contained seven Guiding Principles and six Strategic Themes. We reinterpreted these Guiding Principles in the context of this plan and present seven Guiding Principles for this **ATI Strategic Plan** below.

1. The **ATI Strategic Plan** originates directly from the **ORED Research Strategic Plan 2019-2024 (ORED-OSP)**. The following Strategic Themes and Objectives from **ORED-RSP** are directly linkable or are analogs to the ATI Strategic Plan **(ATI-SP)** as follows:

   a. **ORED-RSP 1.1** "ORED will promote and enhance the university-wide culture for research, scholarship, and creative activities, and especially for cross-disciplinary and collaborative activities in these areas" **(ATI-SP 2.a)**

   b. **ORED-RSP 1.3** "ORED will enhance strategic communications with campus and external stakeholders" **(ATP-SP 3)**

   c. **ORED-RSP 2.1** "ORED will invest in and grow the Alabama Research Institutes and evaluate their success." **(ATI-SP 1, 2, 3, 4)**

   d. **ORED-RSP 2.1.2** "The institutes will...make existing discipline-related centers better and encourage effective collaboration between centers towards the expansion and development of new centers." **(ATI-SP 2.b, 4.b)**

   e. **ORED-RSP 2.1.5** "The institutes will...be named and endowed." **(ATI-SP 3.d)**

   f. **ORED-RSP 2.3** "ORED will shepherd cross-disciplinary foundational research, scholarship and creative initiatives that focus efforts on identifying, understanding, and solving problems related to rural and underserved communities." **(ATI-SP Research Focus Area that includes Transportation Accessibility)**

   g. **ORED-RSP 3.1** "ORED will routinely and fully evaluate the merits of investments in major research and creative initiatives, using the following criteria: transformative, cross-disciplinary, (pathway to) excellence, return on investment, and societal impact." **(ATI-SP 2.b, 2.c, 2.d)**

   h. **ORED-RSP 3.5** "ORED will establish an External Advisory Board and an Internal Advisory Board" **(ATI-SP 3.c)**

   i. **ORED-RSP 6.3** "ORED will track and assess Key Research and Business Engagement Metrics and Outcomes" **(ATI-SP 4.e)**

2. UA has two critical assets that must be the emphasis of all that ATI does: 1) Faculty & Staff – ATI must support and foster their initiatives and innovation, and 2) Students – ATI must support and foster students as global citizens and future workforce talent for the state, nation and the world.

3. Transformative ideas and initiatives, as well as the quality and impact of these initiatives, will be the primary determinants for investments by ATI. In this strategic plan, "transformative" means research, scholarship and creative activities that are highly innovative and shift or break existing paradigms.

4. ATI must strive for excellence in pursuit of its established goals.

5. Service to the State **(ATI-SP 1)** and Research **(ATI-SP 2)** are a synergistic continuum of activities. An increase in research productivity leads to an increase in service to the State, which in turn leads to an increase in research opportunities through sustainable and mutually beneficial partnerships.

6. The centers that are part of ATI must create a strong culture and provide opportunities for cross-disciplinary research around institute research themes that reflect areas of strength and opportunity.

7. Stakeholders including the transportation faculty, transportation Center and Institute Directors, Associate Deans for Research and ATI employees have informed the development of the ATI Strategic Plan.

THE UNIVERSITY OF
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Research &
Economic Development
Alabama Transportation Institute

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